

FOCUSED STUDY ACTIVITY WORK PLAN

General Information

Work Plan Unique Identifier:	B-CM-3-1718
Focused Study Activity Title:	Community Led Berry Contamination Study
Focused Study Category:	Study to Establish the Current Environmental State
Geographic Location (<i>choose from drop-down menu. If Project Location is in more than one area choose from second drop-down</i>)	Regional Municipality of Wood Buffalo
Monitoring Site(s) Coordinates (<i>latitude and longitude</i>)	Two of the five original sites from 2011-2016 study to be retained, the sites with the lowest and highest evidence of contamination. Additional sites to be identified and selected by Indigenous communities based on preliminary workshops to be held in January 2017.
Project Leader:	Sanjay Prasad / Tracy Howlett
Organization and contact information:	Wood Buffalo Environmental Association / EMSD
Date Study initiated:	April 2011
Monitoring Category: (<i>From OSM long-term plan; choose from drop-down menu</i>)	Biotic Response Monitoring
Strategic Objective of Focused Study: (<i>From OSM long-term plan; choose from drop-down menu</i>)	Objective F1: Potential Impacts on Ecosystem Components Valued by Indigenous communities
Hypotheses: (<i>Briefly outline the specific hypotheses that your focused study is aiming to address</i>)	<p><i>Industrial development is having a negative impact on the condition of culturally important berry patches.</i></p> <p><i>Over five years of study with the community of Fort McKay, this hypothesis has been proven, however berries collected in local patches may still be 'healthier' than supermarket produce. There is a community risk perception that berries are contaminated, or impure, and cannot be used for their medicinal, nutritional and social properties. This has resulted in "toxic uncertainty/anxiety" and community members are abandoning important physical, social, and</i></p>

	<p><i>spiritual practices while being forced to travel long distances in order to gather berries that they trust. Additionally, other local Indigenous communities have concerns about their own important berry patches.</i></p> <p><i>This study will synthesize the results of four years of data collection, revisit the community questions around contamination and industrial impact and expand the study area to include additional communities in the oil sands region.</i></p>
<p>Deliverables:</p> <p><i>What tangible goal (s) and/or product(s) will the monitoring produce and when?</i></p>	<ul style="list-style-type: none"> • Synthesis study of five years of berry monitoring data • Published peer reviewed article outlining methodology and lessons learned • Additional opportunities for the Fort McKay Berry Project steering group to spend time in the field, visiting culturally important berry patches and connecting with the land • Expansion of the methodology and program into other communities within the Wood Buffalo region • A clear recommendation regarding the continuation of long term monitoring for berry health in the wood buffalo region that is driven by community interest

Detailed Study Plan

(Please provide detailed information on the specifics of your focused study including – **(keywords, hypothesis and the assumptions and constraints behind your hypothesis)**)

Provide a maximum of 10 key words that describe this project. Use commas to separate them:

Indigenous, culture, cranberry, blueberry, medicine, plant, important, traditional, contamination, perception,

Describe how you will test your hypothesis:

This project has three key parts. The first is a synthesis and assessment of five years of study data. The second is an evaluation of the need and potential for long term monitoring in Fort McKay and the third is an expansion of the methodology into other local oil sands communities. Throughout this project, the WBEA Traditional Knowledge Working Group (TKWG) will be leveraged for its expertise, connection to the communities and ability to prioritize community participation. Where possible, where there is interest and as directed by First Nation and Metis members of the WBEA TKWG, Indigenous Leadership will also participate in the design of this project and will be kept informed of project progress and outcomes.

Part One

This synthesis study will focus on an assessment of five years of monitoring data collected by environmental anthropologist Janelle Marie Baker and the Elders and community members who have been working as part of the Fort McKay Berry Focus Group for the past five years. The final result of this part will be a publication in a peer reviewed scientific journal. As noted by Baker (Forthcoming), while there has been a plan to publish the scientific results of the study, there must also be a consideration of the impacts that development are having on the residents of Fort McKay. In order to assess this impact, a

parallel approach will be applied.

Approach 1: A western science based desktop exercise of data synthesis and analysis will be conducted by the lead researcher. This data will be compiled and summarized in a peer reviewed publication.

Approach 2: Project participants will be interviewed to ascertain their thoughts on what the project results mean for them and their ability to practice their traditional way of life. During these interviews, participants will be asked to share their thoughts on the future of berry monitoring for Fort McKay and help to design a long term monitoring program that is led by Indigenous wisdom within their community.

Part Two:

Using the interview results, a program for long term study of cranberries and blueberries in the Fort McKay community will be established. Given what has already been learned through this project, it is likely that a future long term study will focus on the monitoring of the precious berry patches that are currently located at Moose Lake, an area considered a 'cultural keystone place' (Baker & Fort McKay Berry Focus Group, Forthcoming). For comparison sake, monitoring at the least and most contaminated sites should be maintained long term. This part of the project will be built collaboratively with the Fort McKay Berry Focus Group. There is potential to add an additional comparative step in the analyses and test both raw and washed berries to determine if contamination effects can be mitigated.

Part Three:

In addition to assessing the current program and determining a long term program for Fort McKay, the project may be expanded to include other communities in the oil sands region. In order to ascertain interest in participation, the WBEA TKWG will be canvassed. Given limited funding for participation, the WBEA TKWG will prioritize participation in 2017-2018 to those communities most likely to benefit.

Once candidate communities have been identified, a preliminary site visit will be arranged to select ideal sampling locations. Using the methodology applied in Fort McKay, passive air monitoring, rain gauges, wind gauges, leaf wetness sensors and meteorological tripods will be installed at select sites. Equipment currently installed in Fort McKay sites may be reallocated to these new locations and additional equipment may be required. Sites (both new and existing) will be visited for the fall berry harvest where samples will be taken using the methodology developed by the Berry Group and Janelle Baker. Elders will share their observations of the quality and quantity of the berries and share additional information about the risk associated with each patch. From a western science perspective, samples will be tested, as per previous years, for a range of properties including (Wood Buffalo Environmental Association [WoodBuffaloEnvAssoc], 2015):

- Average monthly temperature
- Rainfall
- Sulphur dioxide (SO₂)
- Nitrogen dioxide (NO₂)
- Volatile Organic Compounds (VOCs)
- Phenolics
- Cholorgenic acid
- Proanthocyanidns
- Leaf wetness

At the end of the sampling year, and once results have been obtained and analyzed, there will be a community open house in each of the participant communities to share the results. These open houses will give community participants a chance to share their knowledge and for additional information to be collected about both perceived and real impacts of berry contamination in the community. With the permission of the community, these open houses may be taped so that oral histories can be retained.

Assumptions and Constraints behind the hypothesis and the testing method:

The research question has not changed.

The Fort McKay Elders and community will be willing to share their methodology with neighbouring or local communities.

The Fort McKay Elders and community members will see the value in a reduced but focused long term monitoring program.

There will be interest in participation from other WBEA member communities.

References:

References

Baker, J. M., & Fort McKay Berry Focus Group (Forthcoming). Cranberries are Medicine: Monitoring, sharing and consuming cranberries in Fort McKay. In L. M. Johnson (Ed.), *Wisdom Engaged: Traditional Knowledge for Northern Community Well-being*. Edmonton: University of Alberta Press.

Wood Buffalo Environmental Association [WoodBuffaloEnvAssoc]. (2015, December 1). *WBEA-Fort McKay Berry Focus Group Video [Video file]*. Retrieved from <https://www.youtube.com/watch?v=F5pl6uPHJPc>

Data Management

If this work generates data please summarize your project-level data management plan.

Deliverables	Timeframe
Data Collection Period: <i>Field work</i>	Start : 2017-04-01 End: 2017-11-30
Data Analysis Period: <i>Laboratory analysis and QA/QC of data</i>	Start : 2017-11-30 End: 2018-02-28
Data Release Date: <i>Metadata and data consistent, complete and meet basic standard format for publication in Open Data; on or linked to JOSM portal</i>	2018-03-31

Reporting and Publications

Provide information on the anticipated reports / publications. (Insert additional rows if needed)

Expected Subject/Titles of Publications or Reports	Short Description of Publication or Report	Expected Year of Publication
5 year synthesis of berry monitoring results	The results of the scientific monitoring and testing that the Berry Group and WBEA have conducted over a period of 5 years will be synthesized and report on in a peer reviewed journal.	2018
Annual report on berry monitoring project – Fort McKay	The annual results report which combined photos of field visits, qualitative data collected during field work and the scientific data/results for that year.	2018

Technical / Professional Roles and Responsibilities

Identify members of the monitoring team/organization, their roles and responsibilities. Identify monitoring organization leads if different from overall monitoring activity lead. (Insert additional rows if needed)

Role	Responsibilities	Resource Name/Organization
Program oversight	<ul style="list-style-type: none"> - Oversight on portfolio of JOSM Indigenous Monitoring and Science projects. - Identify and facilitate coordination/alignment between projects. 	Tracy Howlett, Alberta Environment and Parks
Principle investigator	<ul style="list-style-type: none"> - Coordinate Indigenous community involvement. - Coordinate involvement of scientific and technical experts. - Coordinate information product development (e.g., community reports). 	Janelle Baker, Contractor
Community liaison	<ul style="list-style-type: none"> - Act as a bridge between the community and professional/technical project staff. - Prioritize community involvement. - Facilitate information gathering to inform project design. - Advise on protocols related to Traditional Knowledge. 	Abena Twumasi-Smith - Wood Buffalo Environmental Association – Traditional Knowledge Working Group Mike Gubbels – Alberta Environment and Parks
Community Coordinator (Intern)		
Technical field staff	<ul style="list-style-type: none"> - Sample collection, handling, shipping 	WBEA

Deliverables (Year 1) If your Focus Study is longer than 1 year then complete **Appendix 3** for multi-year deliverables breakdown

Provide a summary of tangible quarterly deliverables. Identify major project areas (deliverables) and results that can be identified as a tangible goal. This could include: field work, lab work/ analysis, evaluation, data, reports, publications, SOPs etc. Do not define process as your Deliverable e.g. ‘fly to Ft. McMurray to conduct fieldwork’ or ‘seek Director approval for report’.

Deliverable(s) (please provide enough information to support status reporting)
Q1 – April to June
Community Open House, coordinated by WBEA, to discuss current project and determine interest from additional communities
Spring site visit to identify additional sites outside of Fort McKay
Setup of additional sites
June meeting with Elders to conduct interviews
Q2 – July to September
July site visit to Fort McKay and newly selected sites to change out passive air filters
Mid-August site visit to additional sites outside of Fort McKay to collect 2017 samples (depending on berry harvest dates) and change out passive air filters
Mid-August site visit to Moose Lake to collect 2017 samples (depending on berry harvest dates) and change out passive air filters
September site visit to Fort McKay and newly selected sites to change out passive air filters
Q3 – October to December
Lab Analyses results
October meeting with Elders to conduct interviews
November project community meeting with Elders
Q4 – January to March
Fort McKay Community Open House to present results of 5 year study
Write up of 5 years of data for publication – Draft ready for peer review
Write up of community report – Draft ready for peer review

Detailed Financial Breakdown – Year 1 of 4 (2017-2018)

Also complete **Appendix 2** for the multi-year financial breakdown

Budget requirements – List areas that require budget expenditures:	Year 1	
	OS Funding	External Funding (outside JOSM)
O&M - Operations and Maintenance:		
Facilities	\$ 4,000	\$
Field Costs	\$ -	\$
Data Management	\$ 3,200	\$
Internal Lab Analysis	\$ -	\$
Sub-Total	\$ 7,200	
O&M - Consumable Materials & Supplies		
Field Equipment	\$ 60,080	\$
Sub-Total	\$ 60,080	
O&M - Travel & Hosting		
Vehicle Costs	\$ 18,965	
Field Work (Site Visits - 6 sites, 3 visits)	\$ 3,230	\$
Conferences (ACOSM Symposium)	\$ 2,280	\$
Community Open Houses (2 Community Centres)	\$ 3,000	\$
Committee Meetings (2 meetings for each group)	\$ 2,400	\$
Staff Travel	\$ 4,950	\$
Sub-Total	\$ 34,825	\$
O&M - External Contracts :		
External Lab Analysis	\$ 48,000	\$
Training	\$ 1,000	\$
Sub-Total	\$ 49,000	\$
Salaries & Benefits:		
Principal Investigator	\$ 35,000	\$
Technical / Professional Assistants	\$ 35,000	\$
Support Staff	\$ 107,245	\$
Honoraria	\$ 49,150	\$
Sub-Total	\$ 226,395	\$
Dissemination & Engagement		
Publications/Reports	\$ 500	\$
Translation (if required)	\$ 6,000	\$
Communications	\$ -	\$
Sub-Total	\$ 6,500	
2017-2018 GRAND TOTAL	\$ 384,000	\$

Appendix 1 - Approvals

Project Submitted by:		
Name:		
Organization:	Signature:	Date:
Project Approved by:		
Dr. Monique Dubé (AEP)		Dr. Kevin Cash (ECCC)
Signature		Signature
		
Date		Date

APPENDIX 2 – Detailed Multi-year Financial Breakdown (Complete the following detailed financial breakdown; add or delete categories as required)

Budget requirements	Year 1 (201X- 201Y)		Year 2 (201X- 201Y)		Year 3 (201X- 201Y)	
	Cash	In-kind	Cash	In-kind	Cash	In-kind
O&M - Operations and Maintenance:						
Facilities	\$ 4,000		\$ -		\$ -	
Field Costs	\$ -		\$ -		\$ -	
Data Management	\$ 3,200		\$ -		\$ -	
Internal Lab Analysis	\$ -		\$ -		\$ -	
O&M - Consumable Materials & Supplies						
Field Equipment	\$ 60,080		\$ -		\$ -	
O&M - Travel & Hosting						
Vehicle Costs	\$ 18,965		\$ -		\$ -	
Field Work (Site Visits - 6 sites, 3 visits)	\$ 3,230		\$ -		\$ -	
Conferences (ACOSM Symposium)	\$ 2,280		\$ -		\$ -	
Community Open Houses (2 Community Centres)	\$ 3,000		\$ -		\$ -	
Committee Meetings (2 meetings for each group)	\$ 2,400		\$ -		\$ -	
Staff Travel	\$ 4,950		\$ -		\$ -	
O&M - External Contracts :						
External Lab Analysis	\$ 48,000		\$ -		\$ -	
Training[2]	\$ 1,000		\$ -		\$ -	
Salaries & Benefits:						
Principal Investigator	\$ 35,000		\$ -		\$ -	
Technical / Professional Assistants	\$ 35,000		\$ -		\$ -	
Support Staff	\$ 107, 245		\$ -		\$ -	
Honoraria	\$ 49,150		\$ -		\$ -	
Dissemination & Engagement						
Publications/Reports	\$ 500		\$ -		\$ -	
Translation (if required)	\$ 6,000		\$ -		\$ -	
Communications	\$ -		\$ -		\$ -	
Grand Total	\$ 384,000	\$ -	\$ -	\$ -	\$ -	\$ -